

Activity Guide



Change in the Making



University of Massachusetts Lowell
Graduate School of Education

Lowell National Historical Park

**Connections
to National
Standards
and State
Curriculum
Frameworks**

Change in the Making is an interdisciplinary program designed to help students achieve state and national standards in History/Social Science, English Language Arts, and Science and Technology/Engineering. The working standards vary state to state, but there is substantial agreement on the knowledge and skills students should acquire. The standards listed below, taken from either the national standards or Massachusetts standards illustrate the primary curriculum links made in *Change in the Making*.

History and Social Science

Identify historic buildings, monuments, or sites in the area and explain their purpose and significance. (Massachusetts)

Explain how objects or artifacts of everyday life in the past tell us how ordinary people lived and how everyday life has changed. (Massachusetts)

English/Language Arts

Identify sensory details and figurative language. (Massachusetts)

Make judgments about setting, characters, and events and support them with evidence from the text. (Massachusetts)

Distinguish cause from effect. (Massachusetts)

Distinguish fact from opinion or fiction. (Massachusetts)

Science and Technology/Engineering

Compare natural systems with mechanical systems that are designed to serve similar purposes (canals v. rivers). (Massachusetts)

Students develop an understanding of changes in environments: for example, changes in environments can be natural or influenced by humans. Some changes are good, some are bad, and some are neither good nor bad. (National Standards)

Change in the Making

Program Description

Change in the Making consists of three 40-minute hands-on workshops and a 30-minute interpretive tour. The workshops and tour provide students with the opportunity to explore the many ways in which the Industrial Revolution significantly changed the way Americans work, live, and use the land. On the tour, students discover the unique resources of Lowell National Historical Park firsthand. The hands-on workshops complement the tour by bringing the significance of these historic resources to life, as students explore different aspects of change as people and work moved from farm to factory.

On tour, students hear the roar of the looms in the Boott Cotton Mills Museum weave room and visit the “Mill Girls and Immigrants” exhibit in the restored boardinghouse. In the workshops, students compare ginning cotton by hand and ginning cotton with a simple machine, become young farm and factory workers dressed in nineteenth-century clothing, and help tell a multi-sensory story about changes in the use of the Merrimack River and the land surrounding it.

Theme

The Industrial Revolution was a defining era in American history. All that we consider "modern" was significantly shaped by this period, whether it be in technology, politics, art, culture, or the nature of work itself.

The Industrial Revolution significantly changed the way Americans work, live, and use the land.

Program Objectives

After visiting the Park and the Tsongas Center and completing the activities in this guide, students will be able to:

- list reasons why people moved from living on farms and making things by hand to living in cities and working in factories.
- identify ways in which inventions and power machinery changed work and the production of goods.
- describe how changes in the way people live and work can have lasting effects on the environment.
- explain how the Industrial Revolution changed the way Americans lived and how these changes still affect us today.

Pre-Visit Activities

1. Factory Life

The Bobbin Girl by Emily Arnold McCully is an excellent work of historical fiction for children. Read this book aloud to students to introduce the story of the Lowell mills.

Background

In some of the Lowell mills, children were hired as bobbin girls and boys, also known as "doffers." Their job was to remove the bobbins filled with yarn from the spinning frames and replace them with empty ones. The work was not constant and usually allowed some time for play. The character of the bobbin girl, Rebecca Putney, is loosely based on Harriet Hanson Robinson (1825-1911) whose mother ran a boardinghouse in Lowell. Harriet began work as a bobbin girl at the age of ten and worked in the mills for many years.

Activities

1. Ask students to think about Rebecca's experience. As a class, brainstorm a list - from Rebecca's perspective - of what was good and what was bad about living and working in Lowell from Rebecca's perspective. Using this information, have students take on the role of a young mill worker who has been living and working in Lowell. Copy and distribute "A Letter Home" on page 7 of this guide. Have students write a letter to a friend or family member describing life in Lowell and working in a mill. Students should tell what they like and what they do not like about factory life.
2. Read aloud the following selection taken from *Loom & Spindle or Life Among the Early Mill Girls* by Harriet Hanson Robinson. The reading describes what happened to her mother, a boardinghouse keeper, after the strike.

"The agent of the corporation where I then worked took some small revenge on the supposed ringleaders....My mother was turned away from her boarding-house, that [agent] saying, "Mrs. Hanson, you could not prevent the older girls from turning out, but your daughter is a child, and her you could control."

Then discuss the following questions with students:

- Why did the agent "turn away" or fire Mrs. Hanson from her job as a boardinghouse keeper?
- What do you think about the agent's decision?

2. Farm Life

Ox-Cart Man by Donald Hall describes the day-to-day life of an early-nineteenth-century New England family throughout the changing seasons. Read this book aloud to students to introduce aspects of farm life.

Background

Before the Industrial Revolution, most Americans lived on farms. The whole family worked together to make the things they needed for daily life. They bartered for the things they could not make themselves. Boys and girls living on farms had specific jobs to do throughout the day and had little time for school or play.

Activities

1. After reading *Ox-Cart Man*, explore farms and farm families with your class. Ask students to think about and discuss how farm families provided for their needs, what a farm workday was like, and what kind of activities children did for work and fun. Have students imagine themselves as a member of a nineteenth-century farm family. Copy and distribute "Dear Diary" on page 8 of this guide. Ask each student to take on the role of a child living on a New England farm and write a diary entry describing a typical day. At the bottom of the page, students can draw a picture of themselves working on a farm.
2. In this story, the farmer walks for ten days "over hills, through valleys, by streams past farms and villages." Ask students to think about the farmer's journey and have them write about what he might have seen or whom he might have met along the way.

3. Working on the Farm and Working in the Mill

In the early-nineteenth-century, thousands of young women left farms throughout New England to come and work in the Lowell mills. Although these young women worked long hours both on the farm and in the factory, factory labor differed dramatically from farm work.

Activities

1. Copy and distribute "Emily Nutter's Workday on the Farm and in the Mill" on page 9 of this guide. Have students compare and contrast how work and life changed from the farm to the factory. Which workday would they prefer? Why?
2. Using Emily's schedule as a guide, have students create a schedule of their day. Ask students to compare their workday with Emily's. How has the Industrial Revolution affected what they do during the day as compared with how Emily spent her day? How has industrialization affected the amount of free time they have as compared with Emily?

4. Singing about the Farm and the Mill

"I've Been Working as a Weaver" on page 10 of this guide is a song about the change from working on the farm to working in the factory. It is sung to the tune of "I've Been Working on the Railroad." Practice singing this song with your students. They will be able to perform the song during their visit.

5. Changes in the Land

A River Ran Wild by Lynne Cherry captures the changes that took place in New England during different time periods. Read this book aloud to students to discuss the changes in the use of the river and the land by various groups of people.

Background

This book tells the story of the Nashua River through time: when the area was inhabited only by Native Americans, from early settlement to the time of the American Revolution, and after 1820 as urbanization and industrialization increased. The book illustrates the effects on land and water of residential and industrial development over time.

Activities

1. Read the story to students, pointing out passages that contain figurative language and sensory details such as those in the following passage: "The Nashua was dark and dirty. The Nashua was slowly dying." Choose passages that reflect the three different time periods: (1) when the Native Americans first lived there, (2) farm life along the river, (3) mills along the river. Write these three passages for the whole class to view or have students write them individually. As a class, discuss the effect of the imagery on the students.
2. Distribute large art paper to each student. Have students divide the paper into three sections by folding. Refer students to the three passages they have written. Ask students to draw an illustration that captures their interpretation of each passage.

6. Building Lowell

Near a bend in the Merrimack River lies Pawtucket Falls, where the water plummets 30 feet. This was an ideal spot for water-powered manufacturing. Lowell's first textile mill opened in 1823. By 1848, Lowell was the largest industrial center in America.

Activities

1. During your visit, students will view a model of the city of Lowell and create a floor map of Lowell's mills and canals. Use "**Lowell Canal System 1848**" on page 11 to introduce the idea of Lowell as an industrial city. Discuss the importance of canals for transportation and waterpower. Provide each student with a copy of the map and have them color the following:

Rivers – Blue

Canals – Light Blue

Mills and Machine Shop – Red

Farms - Green

Pawtucket Falls – Dark Blue

2. Discuss with students how Lowell grew from a farming community (East Chelmsford) into an industrial city. Discuss the growth and development of Lowell (population, mills, canals, downtown area, neighborhoods) and talk about the possible effects on the land and river, e.g. pollution, dams, loss of green space, urban and industrial waste. Then, discuss how these changes might have lasting effects on the environment.

A Letter Home

Date: _____

Dear _____,

I wanted to tell you about my life in Lowell. I like living and working in Lowell

because _____

_____.

I do not like living and working in Lowell because _____

I miss _____

_____.

about living on the farm.

I think I will stay/not stay in Lowell because _____

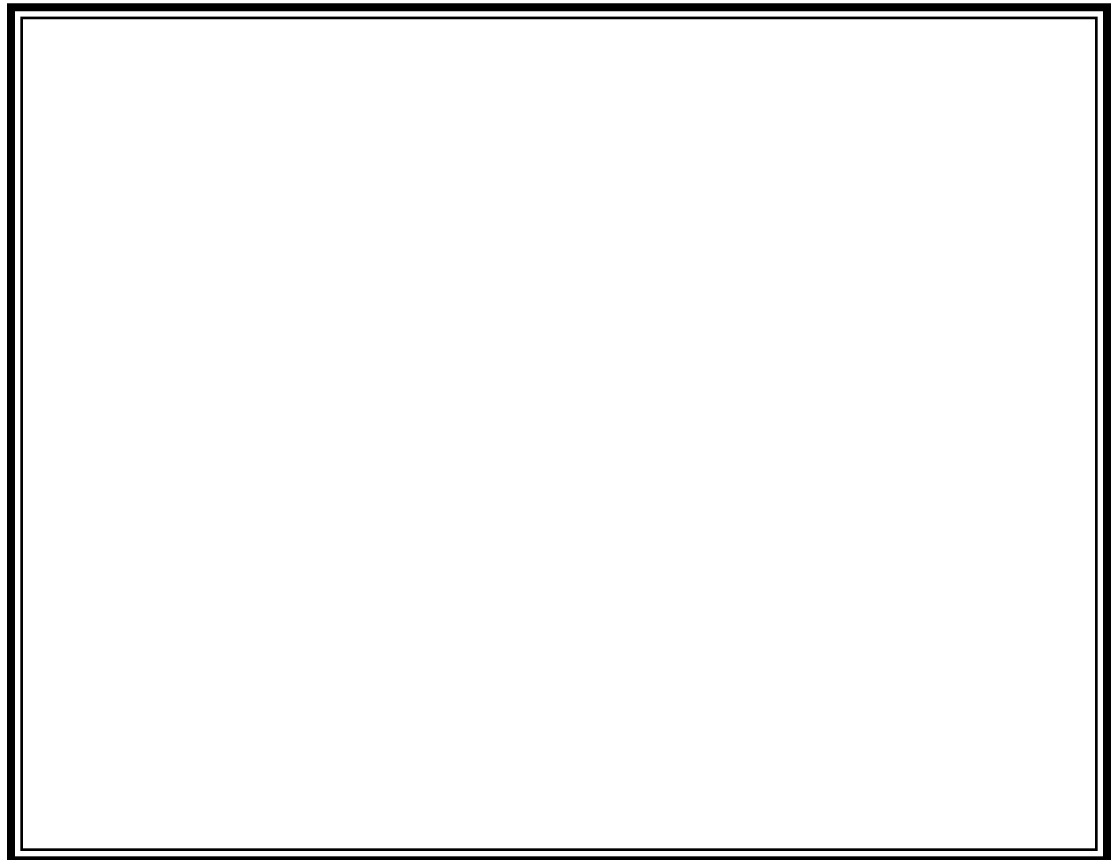
_____.

Yours truly,

Dear Diary

Date: _____

Dear Diary,



Emily Nutter's Workday on the Farm and in the Mill

<u>Time</u>	<u>Emily on the Farm</u>	<u>Emily in the Mill</u>	<u>Your Day</u>
4:00 am		Get up and dressed.	
5:00 am	Get up and dressed. Milk the cows in the barn.	Mill opens; work begins. Work at spinning frame.	
6:00 am			
7:00 am	Eat breakfast with family. Feed the chickens.	To boardinghouse for breakfast.	
8:00 am		Back to the mill. Machines are started.	
9:00 am	Help mother make cheese from milk.	Work at spinning frame.	
10:00am	Make bread. While dough rises, spin yarn. Keep an eye on baby brother.		
11:00 am			
12:00 pm	Help mother prepare dinner. Eat dinner and feed baby.	To boardinghouse with other mill girls for dinner.	
12:30 pm			
1:00 pm	Work in the garden. Gather vegetables.	Back to the mill. Machines are started.	
2:00 pm		Work at spinning frame.	
3:00 pm	Neighbor visits to trade wool for eggs. Spin while neighbor visits with mother.		
4:00 pm			
5:00 pm	Make stew from garden vegetables.		
6:00 pm	Milk cows again. Eat supper.		
7:00 pm	Wash dishes.	Work ends. Mill closes. Go to boardinghouse.	
7:30 pm	Sew new dress while father reads the Bible to the family.	Eat supper.	
8:00 pm		Free time (attend a lecture, read, sew, peddlers bring wares, young men visit, etc.)	
9:00 pm	Go to bed.		
10:00 pm		Lights out. Go to bed.	

I'VE BEEN WORKING AS A WEAVER

(sung to the tune of "I've been working on the railroad")

The musical score is written on ten staves, each with a treble clef and a key signature of one flat (B-flat). The time signature is common time (C). The melody is simple and repetitive, with lyrics written below each staff. The lyrics tell the story of a person who has moved from a farm to a textile mill in Lowell. The score includes a double bar line after the fourth staff and another after the eighth staff.

I've been work-ing as a wea - ver in the mills of Lowell.

I've been work-ing as a wea-ver, mak-ing tex-tiles is my goal.

I was from a farm-er's fam' - ly. Worked hard for no pay.

Now, I'm work-ing as a wea-ver and farm life's passed a- way.

Work-ing in the mills, Work-ing in the mills, Work-ing in the mills of Lowell.

Work-ing in the mills, Work-ing in the mills, Work-ing in the mills of Lowell.

Once I fed the chick-ens and live-stock, cleaned and cooked and helped o-thers

with the chores. But my fa-ther said "We need mon-ey." Now I'm on a fac-t'ry

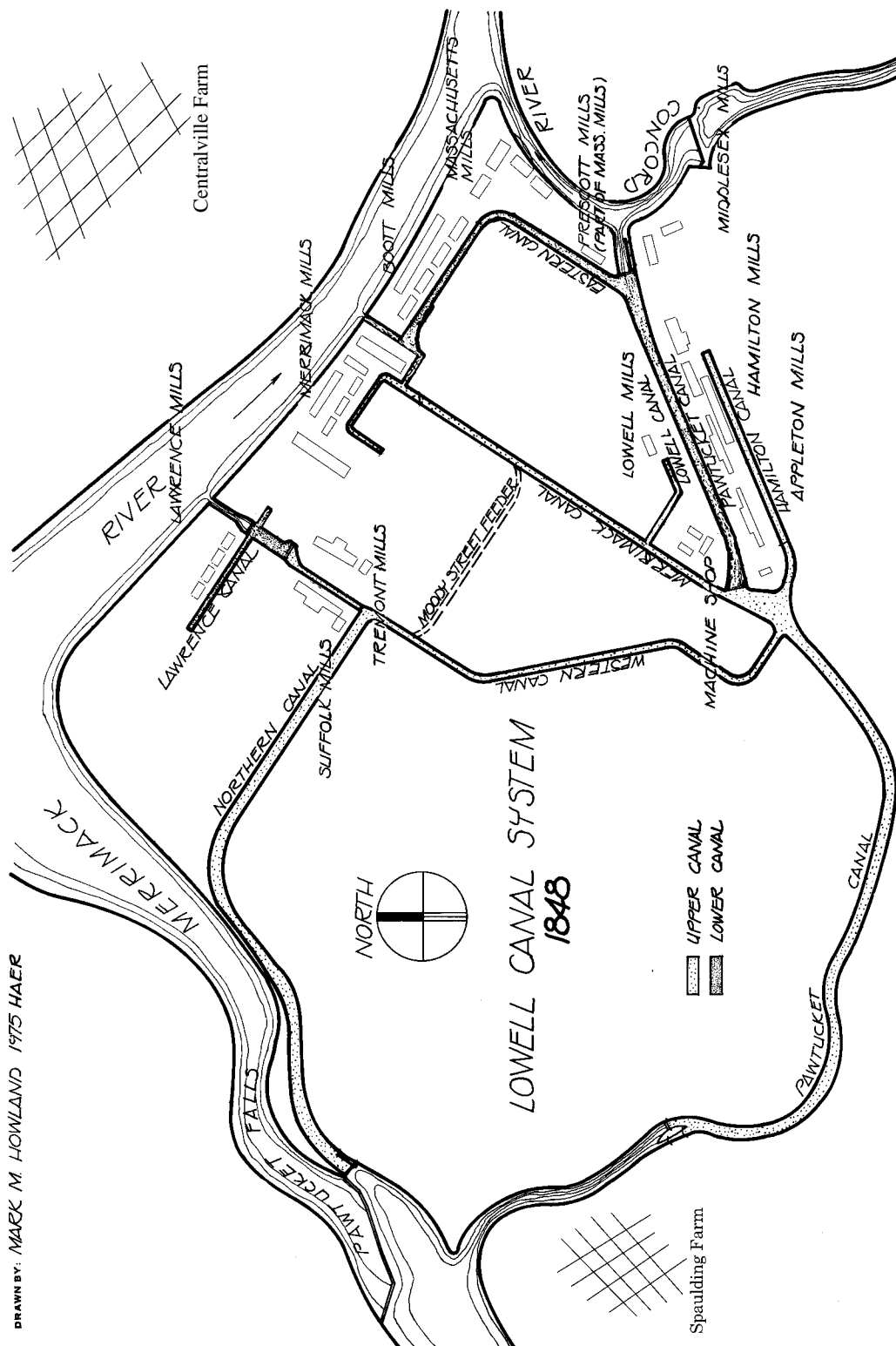
floor. Oh my, the first day on the job was ex- haust-ing.

Heat and dust and noise were too much to bear. But, I'm still work-ing as a

wea - ver. Dawn 'til dusk, no time to spare.

Original Lyrics by: Katherine M. Navetta All Rights Reserved

DRAWN BY: MACK M. HOWLAND 1975 HAER



Please color the following:

Rivers - Blue

Canals - Light Blue

Farms - Green

Pawtucket Falls - Yellow

Mills and Machine Shop - Red



Post-visit Activities

1. Diamante Poem

A diamante poem is a diamond-shaped poem with seven lines. In this activity, students write a diamante poem that contains simple sensory details to express in a creative way what they learned.

Materials

- 10-20 index cards per group (or paper cut to 3x5 size)
- paper on which to record the final poem
- markers or pencils

Directions

1. This activity can be done as a large group (i.e., a whole class) concentrating on one theme, or you can break the class down into smaller groups and assign them different concepts such as Native American Life, Farm Life, Factory Life, Leaving Home, Beginning a New Life in the City.
2. Choose a recorder for each group. This person will write the words on the cards as they are suggested by members of the group. Encourage each group member to contribute a minimum of 2 or 3 words.
3. Ask students to give a variety of words representing the themes or scenes they are describing. Encourage students to keep the five senses in mind and to think of words that are nouns, adjectives, and verbs.
4. After students have about 10 - 20 words, they can lay them out and begin to arrange them to make a poem. Words can be arranged into a diamante poem as follows:

Example:

First line:	one noun	<i>Farm Life</i>
Second line:	two adjectives	Farm
Third line:	three verbs or verbals	Sunny, quiet
Fourth line:	four nouns	Spinning, planting, cooking
Fifth line:	three verbs or verbals	Family, animals, fields, cows
Sixth line:	two adjectives	Playing, singing, plowing
Seventh line:	one noun	Happy, busy
		Home

Variations

1. Give one group's cards to a new group to arrange a poem. Compare that group's poem with the original.
2. Collect all the cards and have the whole group create a poem that captures the entire Lowell experience.

2. Young Inventors

During their visit, students learned about the cotton gin and took on the role of inventors to solve the problem of removing seeds from cotton. This activity allows students to identify a problem and create their own invention to solve it.

Inventive Thinking

Before students find their own problems and create inventions to solve them, have the class as a whole practice some inventive thinking.

1. As a class, brainstorm a list of problems which exist in the classroom.
2. Select one problem and list possible solutions.
3. Have students select one or more possible solutions and develop an idea for an invention.
4. Divide students into smaller groups to refine and improve their invention.
5. Allow each group to share their invention with the rest of the class.

Invention Convention

Now that students have worked together on a solution to a class problem, they can choose a problem of their own and create their own invention to solve it.

1. Ask students to think about problems that exist at home or at school. Encourage students to focus on the topic of work, such as doing homework, sharpening pencils, feeding the dog, making the bed, etc. List the problems that need to be solved.
2. Using the list of problems, ask students to think about which problems could be solved by an invention. After they choose which problem to solve, they need to work on developing their ideas for their invention.
3. To complete the process, have students name their invention, draw a picture of it and perhaps create an advertisement for their new invention, including a description of how it works.
4. Plan an "Invention Convention" where students display their invention, explain how it works, and tell about how they got their idea.

3. Comparing Farm to Factory

The Industrial Revolution changed, for better and for worse, the way Americans work, live, and use the land. Review *A River Ran Wild*, *The Bobbin Girl*, and *Ox-Cart Man* and have students recall story details that show how America changed from an agricultural society to an industrial society.

Activities

1. As a class, brainstorm a list of changes resulting from industrialization. Have students vote on whether each is an advantage or disadvantage and have students justify their reasoning. Discuss how an advantage for some could be a disadvantage for others.
2. Have students complete the following statement: "One way the Industrial Revolution has affected me. . ."

Terms

boardinghouse - A large dormitory-style building where factory workers lived.

bobbin – A spool or reel for thread.

cotton gin - A machine used to separate the seeds from cotton.

factory - A building or group of buildings in which goods are made; a mill.

farm - An area of land, including the buildings, on which crops or animals are raised.

goods – Merchandise; wares.

Industrial Revolution – The changes in how people live and work brought about by the shift from home-based hand manufacturing to large-scale factory production.

invention - A new device, method, or process developed through creativity, study, and experimentation.

loom - A machine on which cloth is made by interweaving thread.

manufacture – To make or process from raw materials, especially with the use of machinery.

mill girls - Young women who came to work in the mills.

pollution - The act or process of contaminating soil, water, or the atmosphere by the discharge of harmful substances.

river - A natural flow of water which empties into another river, a lake, or an ocean.

shuttle – A device used in weaving to carry the weft thread back and forth in a loom.

spin – To draw out and twist fibers into thread.

technology - The body of knowledge people use to make and use tools and machines.

warp - The long vertical thread which extends through the loom, and through which passes the weft thread.

waterwheel – A wheel propelled by falling or running water and used to power machinery.

weft - The horizontal thread running perpendicular to the warp.

weave – To make cloth by interlacing weft and warp threads.

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TimeLiner 5.0 by Tom Snyder Productions.



The Tsongas Industrial History Center is a joint educational enterprise sponsored by the University of Massachusetts Lowell and Lowell National Historical Park. Established in 1987, its goal is to encourage the teaching of industrial history in elementary and secondary schools.

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